1/17

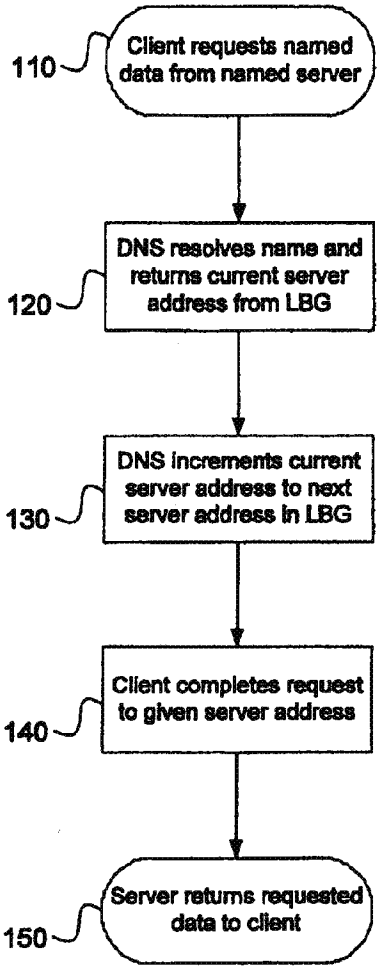
110
Client requests named data from named server
120
DNS resolves name and returns current server address from LBG
130
DNS increments current server address to next server address in LBG
140
Client completes request to given server address
150
Server returns requested data to client

Fig. 1

200

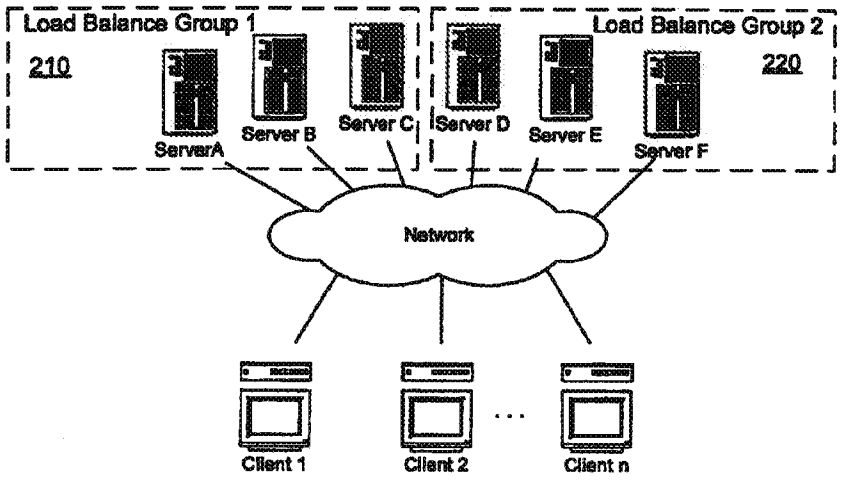

Fig. 2

310

Server Name	SLB Para1	SLB Para2	SLB ParaN
Server A	(data)	(data)	(data)
Server B	(data)	(data)	(data)
Server C	(data)	(data)	(data)

320

Server Name	SLB Para1	SLB Para2	SLB ParaN
Server D	(data)	(data)	(data)
Server E	(data)	(data)	(data)
Server F	(data)	(data)	(data)

Fig. 3

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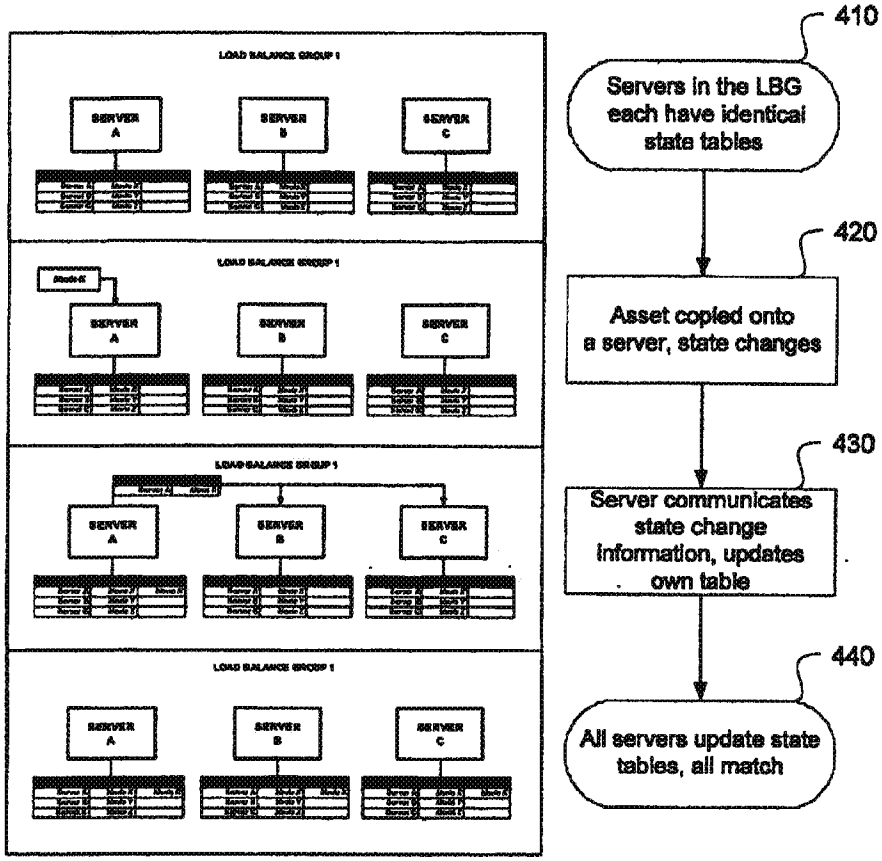
LOAD BALANCE GROUP 1
SERVER A
SERVER B
SERVER C
LOAD BALANCE GROUP 1
SERVER A
SERVER B
SERVER C
LOAD BALANCE GROUP 1
SERVER A
SERVER B
SERVER C
LOAD BALANCE GROUP 1
SERVER A
SERVER B
SERVER C
410
Servers in the LBG each have identical state tables
420
Asset copied onto a server, state changes
430
Server communicates state change information, updates own table
440
All servers update state tables, all match

Fig. 4

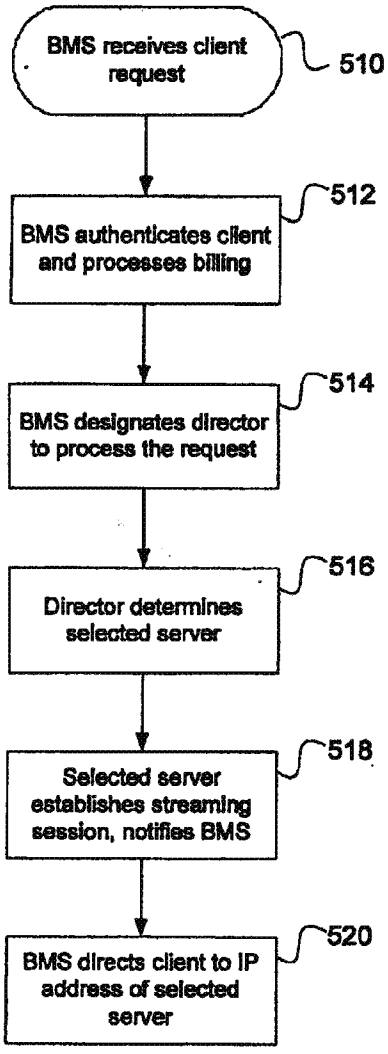
BMS receives client request
510
BMS authenticates client and processes billing
512
BMS designates director to process the request
514
Director determines selected server
516
Selected server establishes streaming session, notifies BMS
518
BMS directs client to IP address of selected server
520

Fig. 5A

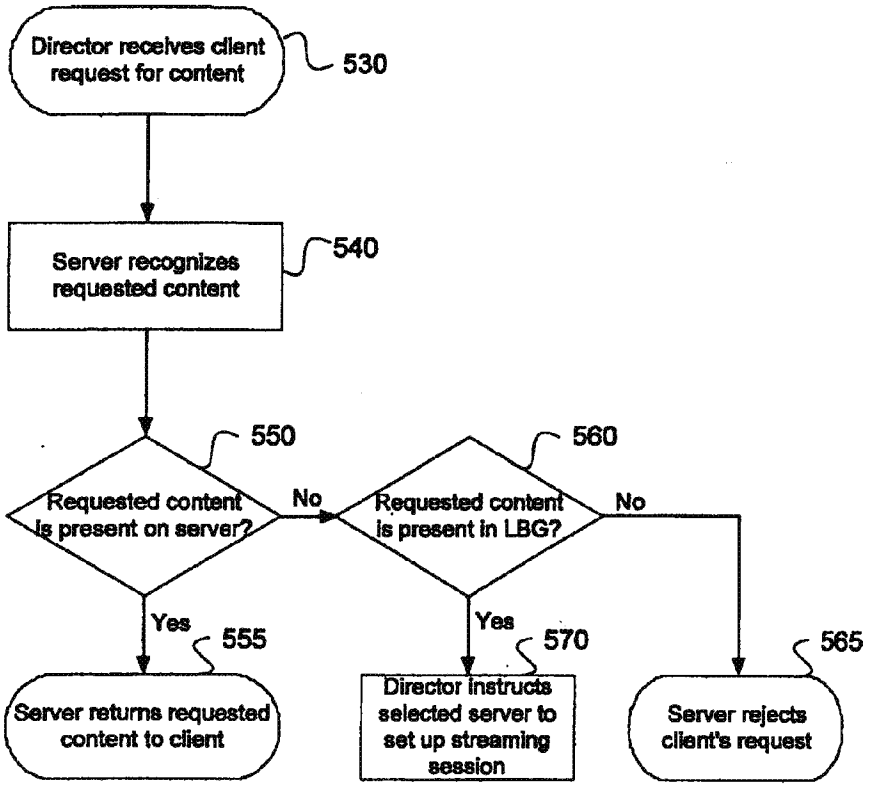
Director receives client request for content
530
Server recognizes requested content
540
550
Requested content is present on server?
No
560
Requested content is present in LBG?
No
Yes
555
Server returns requested content to client
Yes
570
Director instructs selected server to set up streaming session
565
Server rejects client's request

Fig. 5B

Forwarding

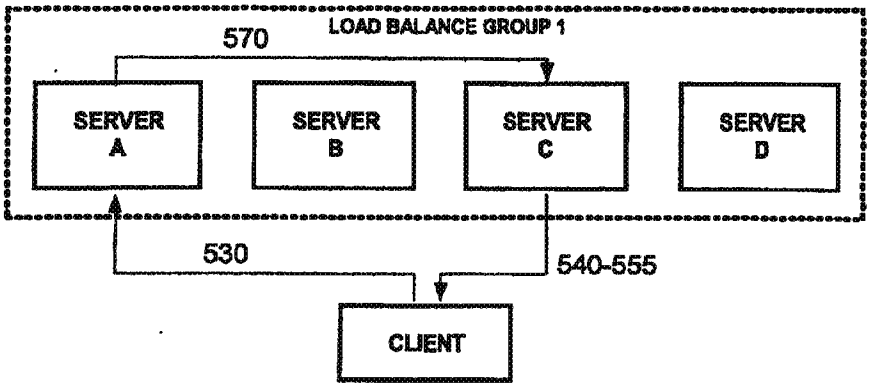

Fig. 5C

Redirecting

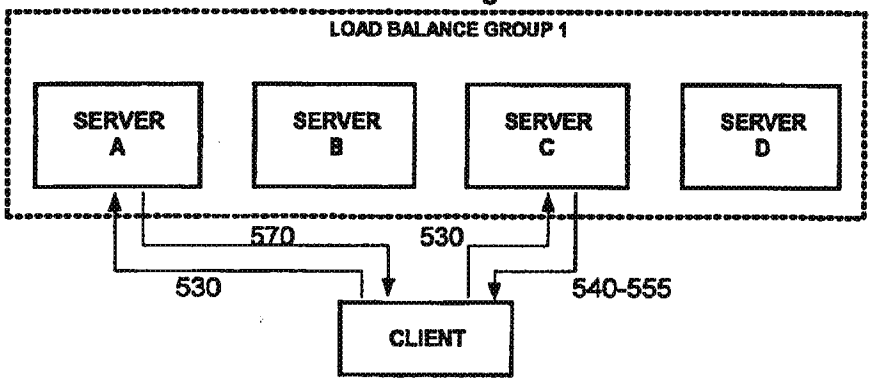

Fig. 5D

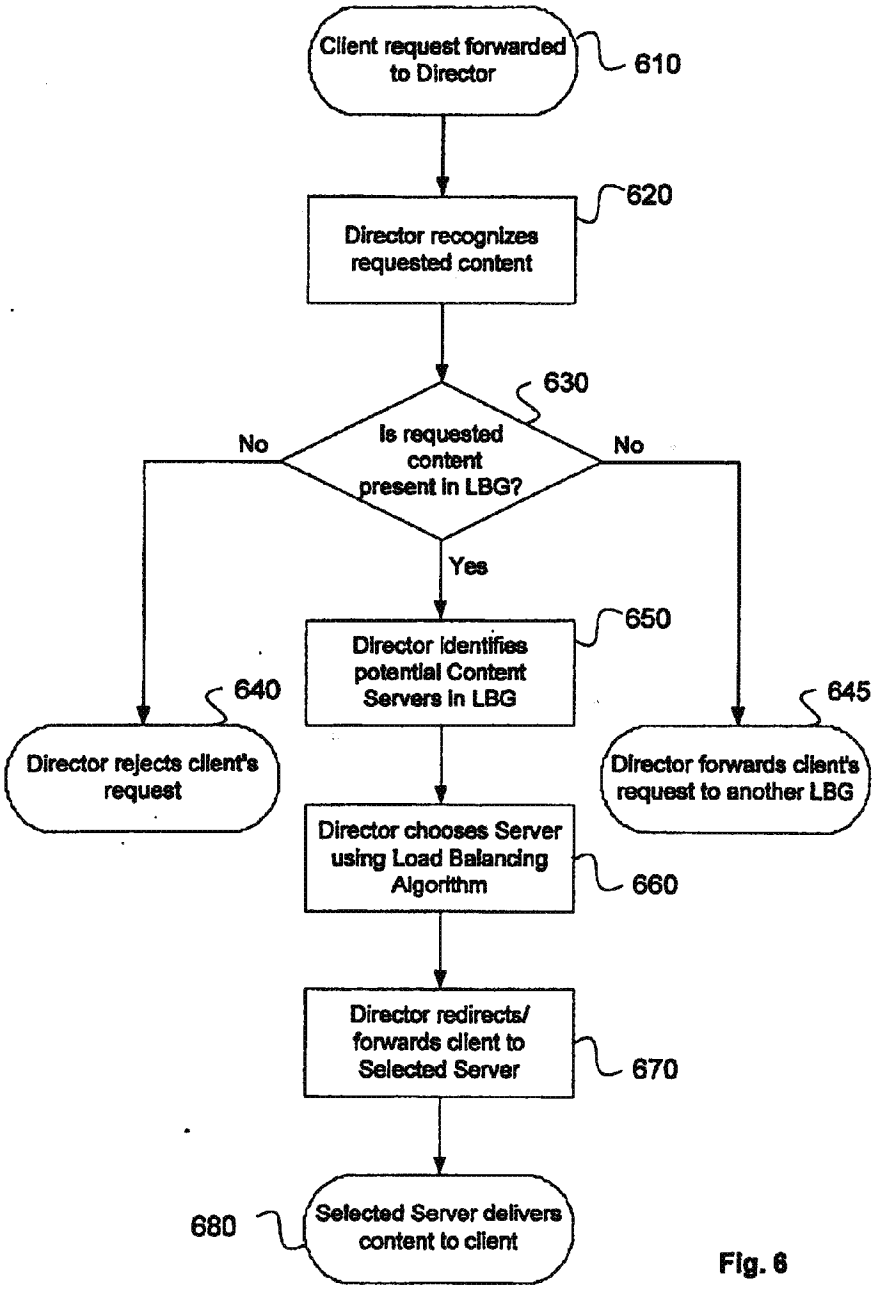
Client request forwarded to Director
610
Director recognizes requested content
620
630
Is requested content present in LBG?
No
No
Yes
Director identifies potential Content Servers in LBG
650
640
Director rejects client's request
645
Director forwards client's request to another LBG
Director chooses Server using Load Balancing Algorithm
660
Director redirects/ forwards client to Selected Server
670
680
Selected Server delivers content to client

Fig. 6

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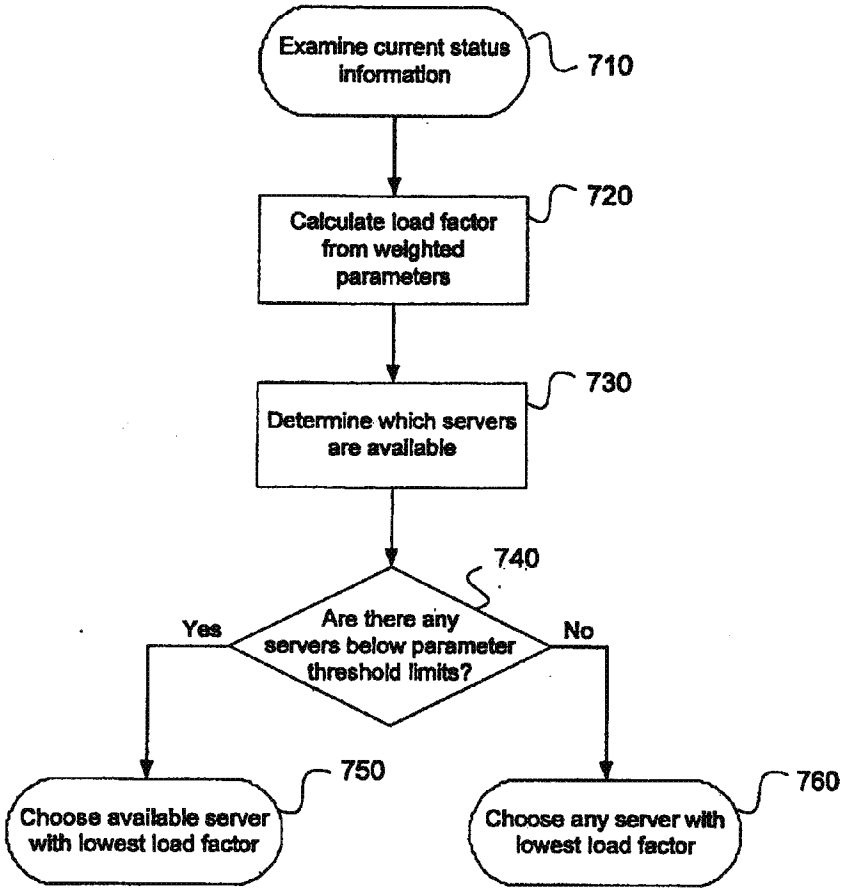
Examine current status information
710
Calculate load factor from weighted parameters
720
Determine which servers are available
730
740
Are there any servers below parameter threshold limits?
Yes
No
Choose available server with lowest load factor
750
Choose any server with lowest load factor
760

Fig. 7

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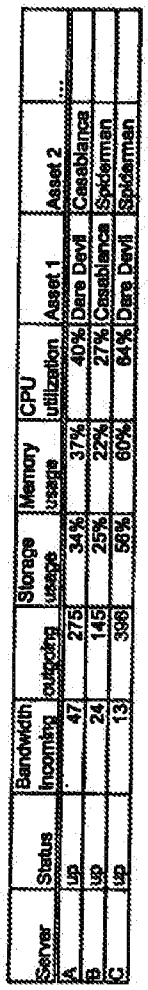

Server	Status	Bandwidth		Storage usage	Memory usage	CPU utilization	Asset 1	Asset 2	...
		Incoming	outgoing						
A	up	47	275	34%	37%	40%	Dare Devil	Casablanca	
B	up	24	145	25%	22%	27%	Casablanca	Spiderman	
C	up	13	398	56%	60%	64%	Dare Devil	Spiderman	

Fig. 8

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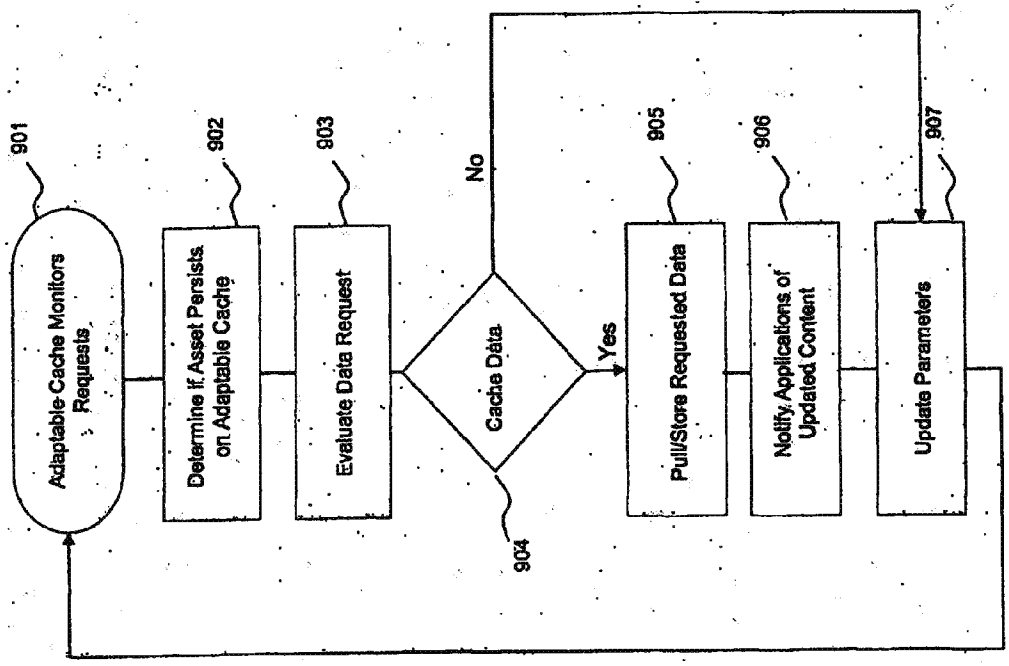

Figure 9

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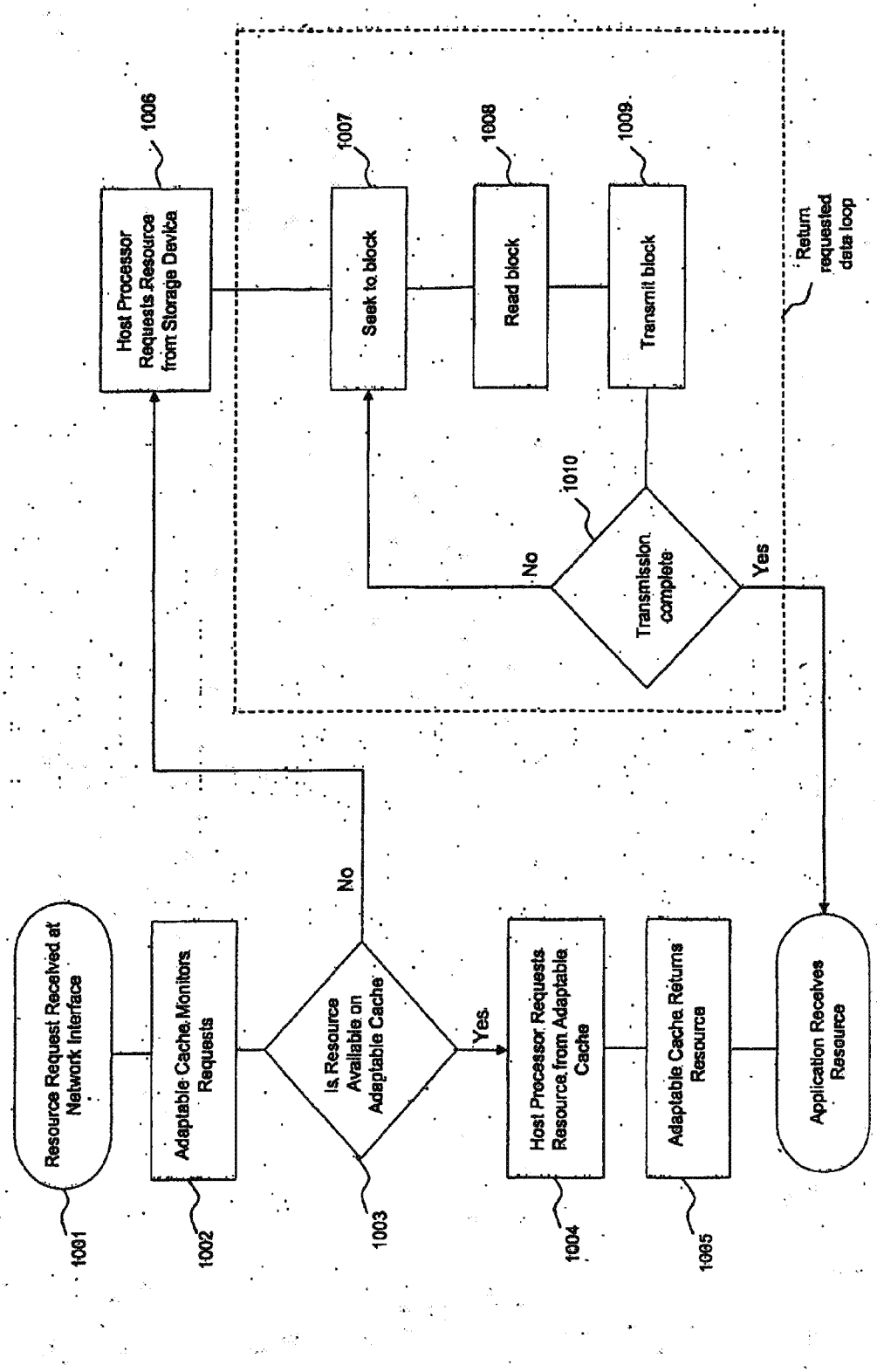

Figure 10

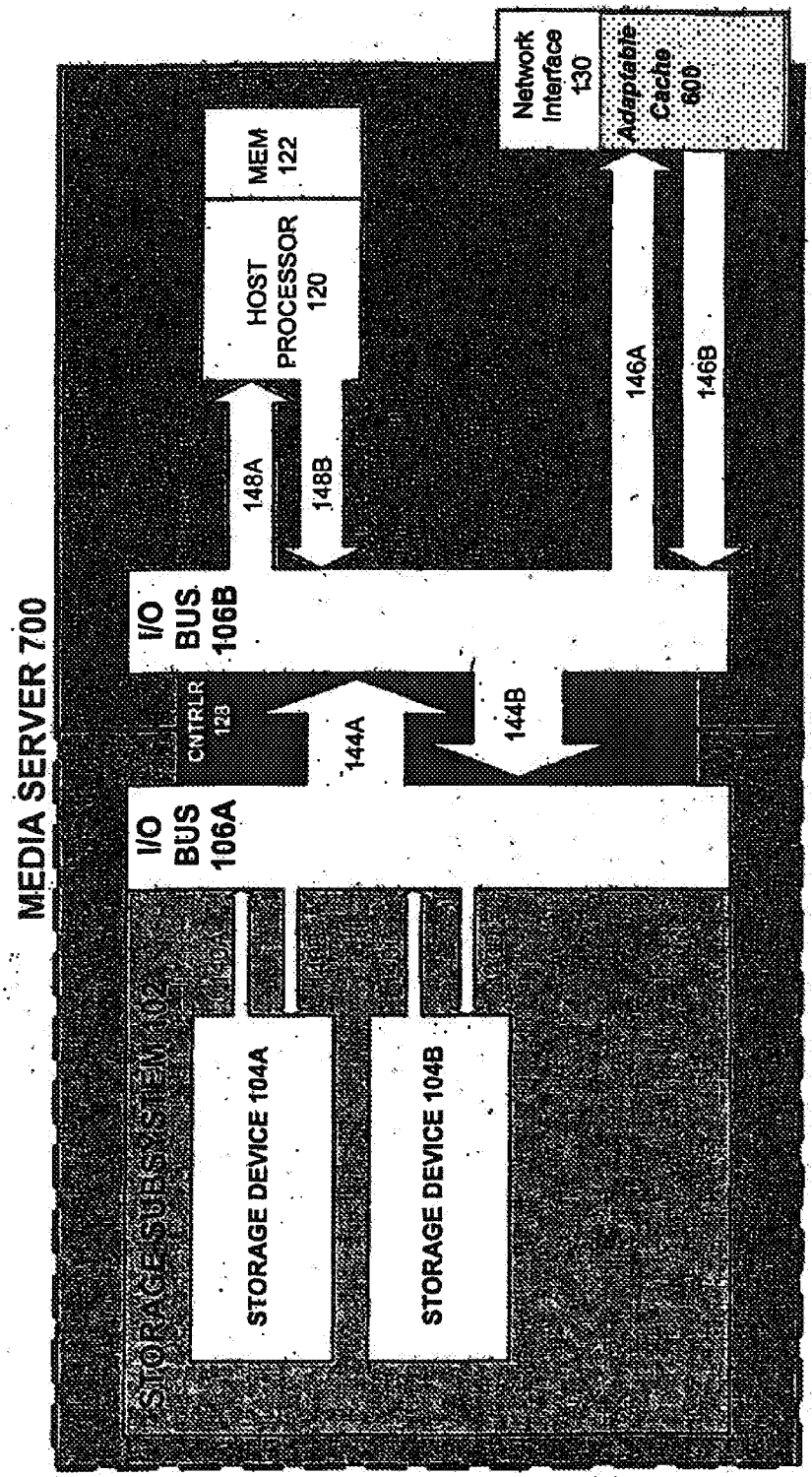
MEDIA SERVER 700
STORAGE SUBSYSTEM 102
STORAGE DEVICE 104A
STORAGE DEVICE 104B
I/O BUS 106A
I/O BUS 106B
CNTRLR 123
144A
144B
148A
148B
HOST PROCESSOR 120
MEM 122
Network Interface 130
Adaptable Cache 600
146A
146B

Figure 11

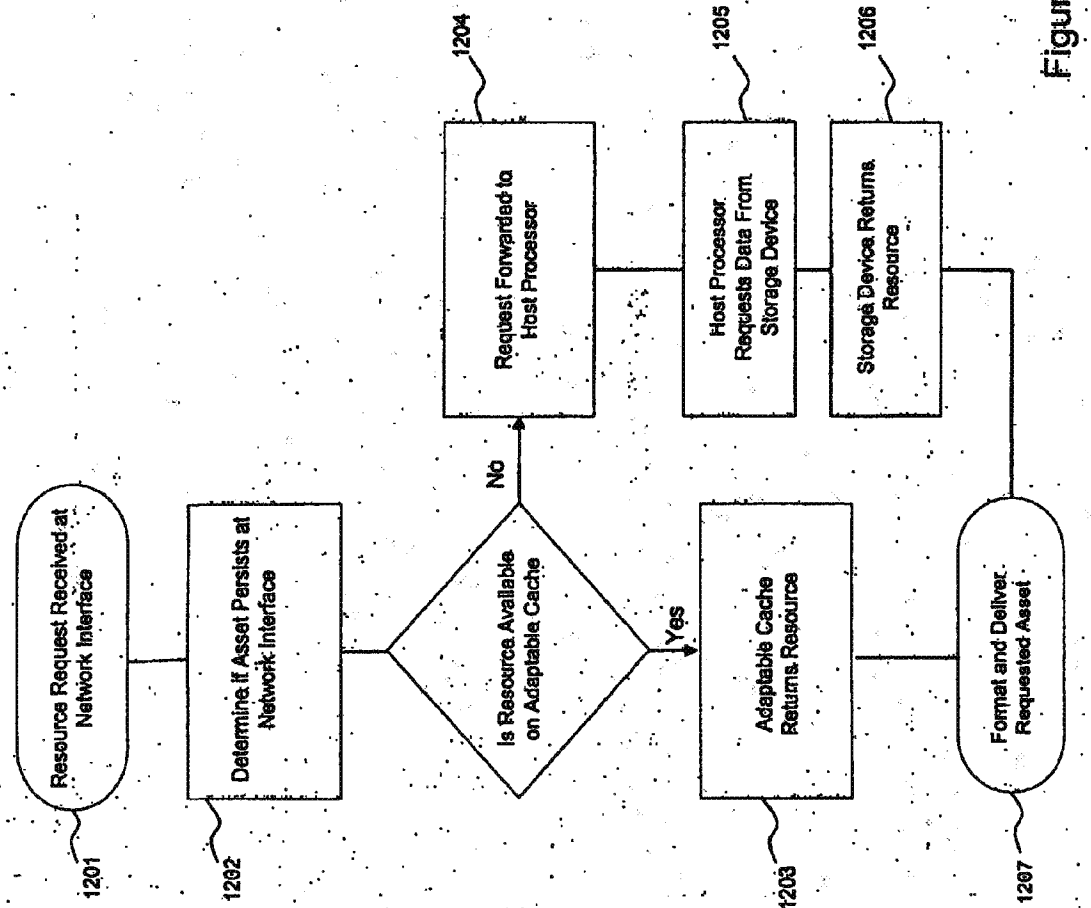
Resource Request Received at Network Interface
1201
Determine if Asset Persists at Network Interface
1202
Is Resource Available on Adaptable Cache
No
Yes
Request Forwarded to Host Processor
1204
Host Processor Requests Data From Storage Device
1205
Storage Device Returns Resource
1206
Adaptable Cache Returns Resource
1203
Format and Deliver Requested Asset
1207

Figure 12

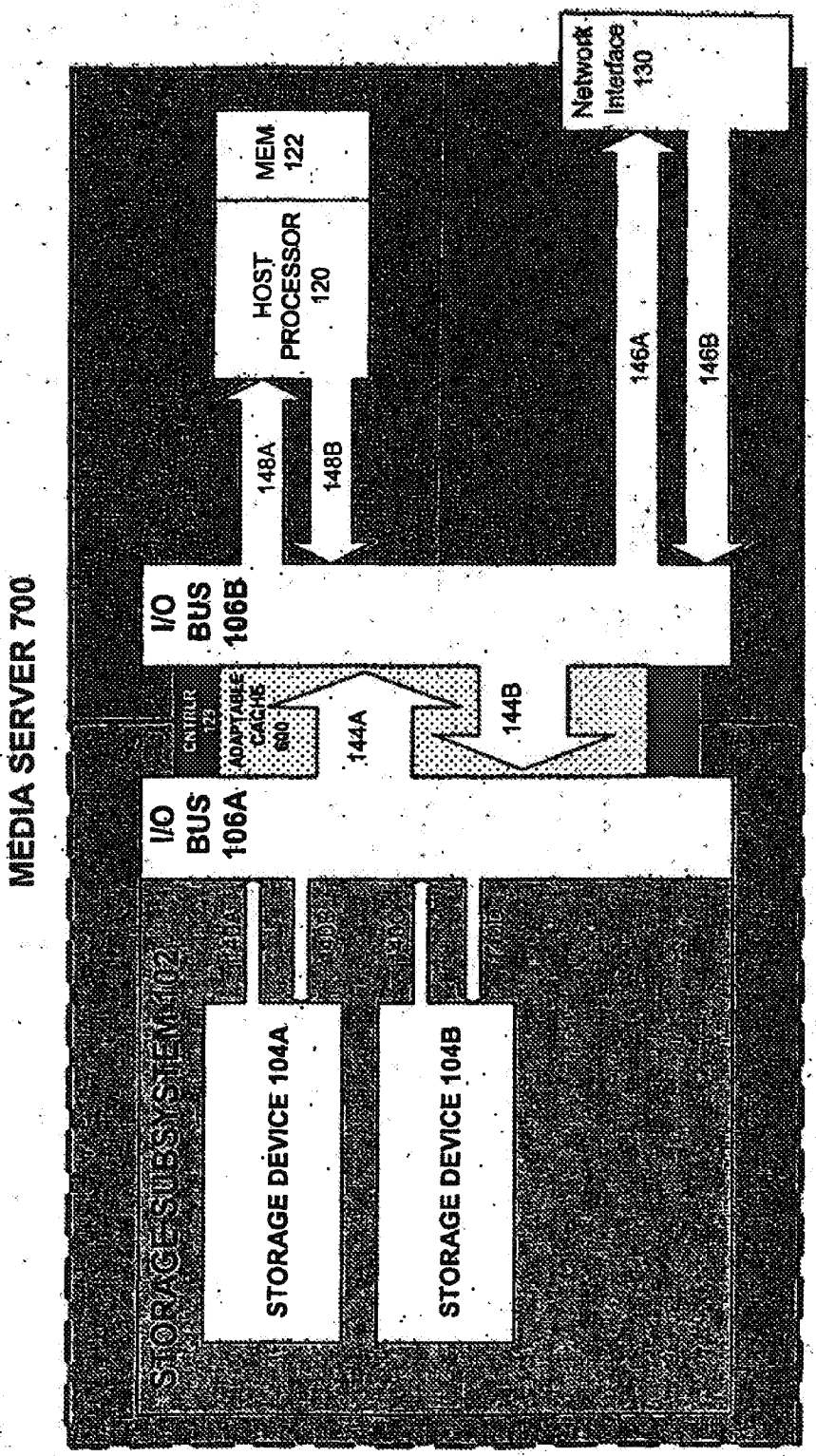
MEDIA SERVER 700
STORAGE SUBSYSTEM 102
STORAGE DEVICE 104A
STORAGE DEVICE 104B
I/O BUS 106A
I/O BUS 106B
CONTROLLER 123
ADAPTABLE CACHE 600
144A
144B
148A
148B
HOST PROCESSOR 120
MEM 122
Network Interface 130
146A
146B

Figure 13

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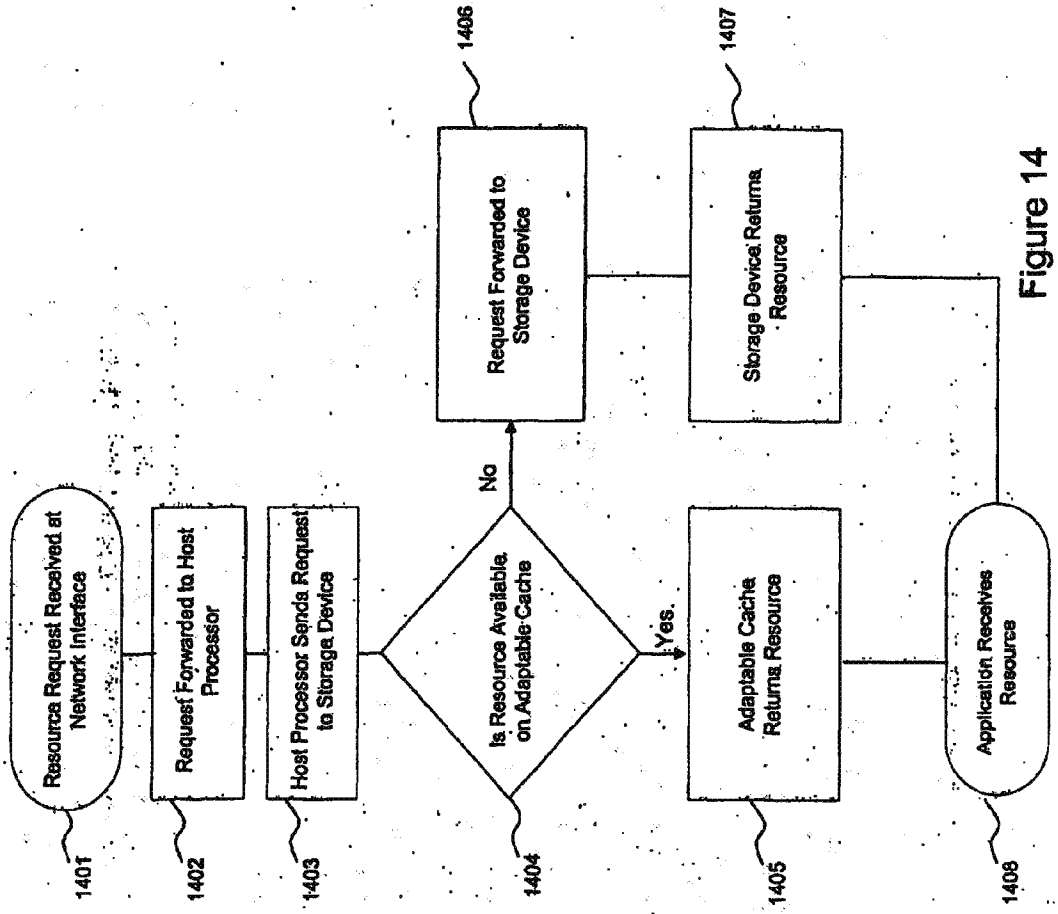

Figure 14

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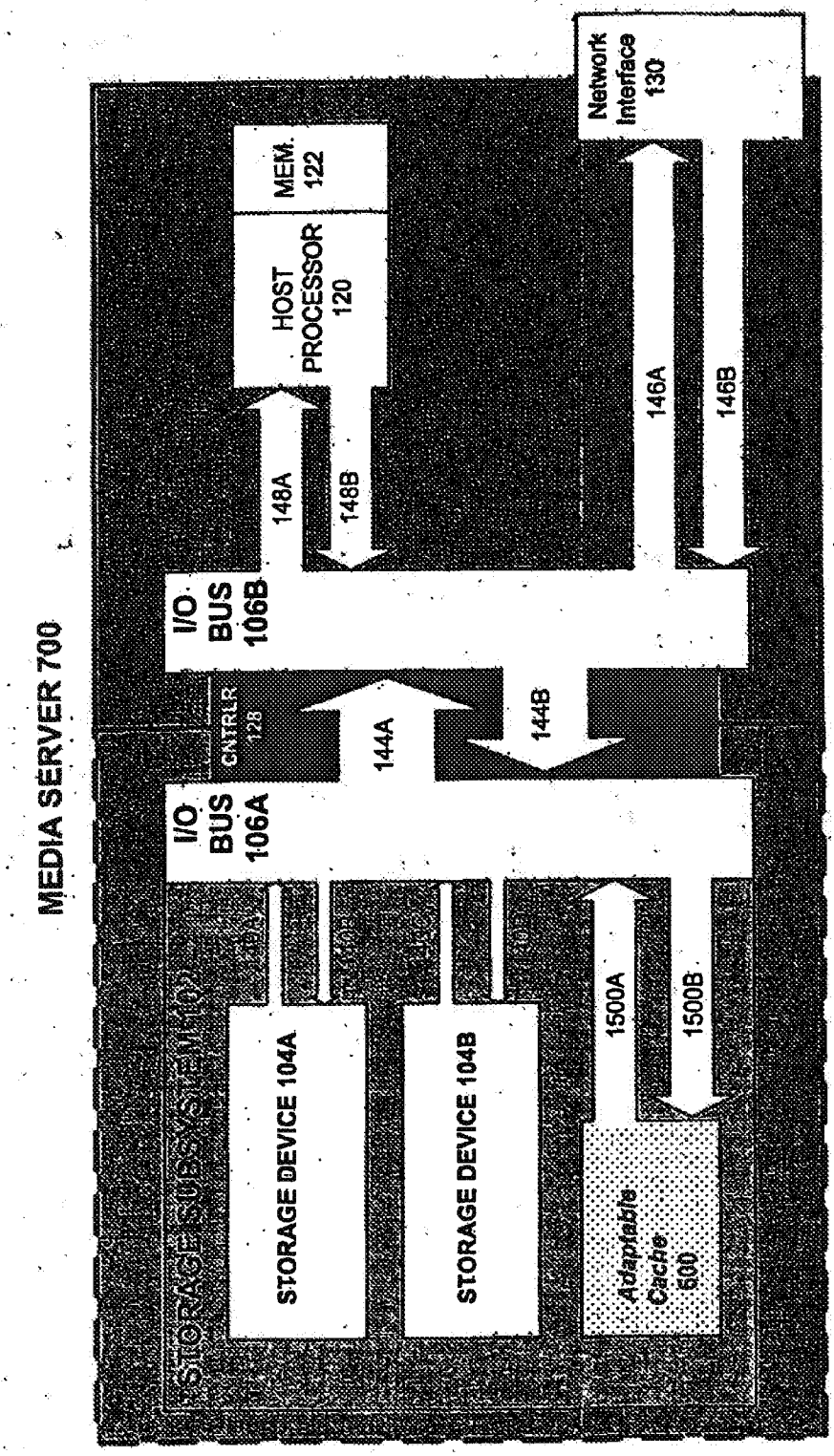

Figure 15

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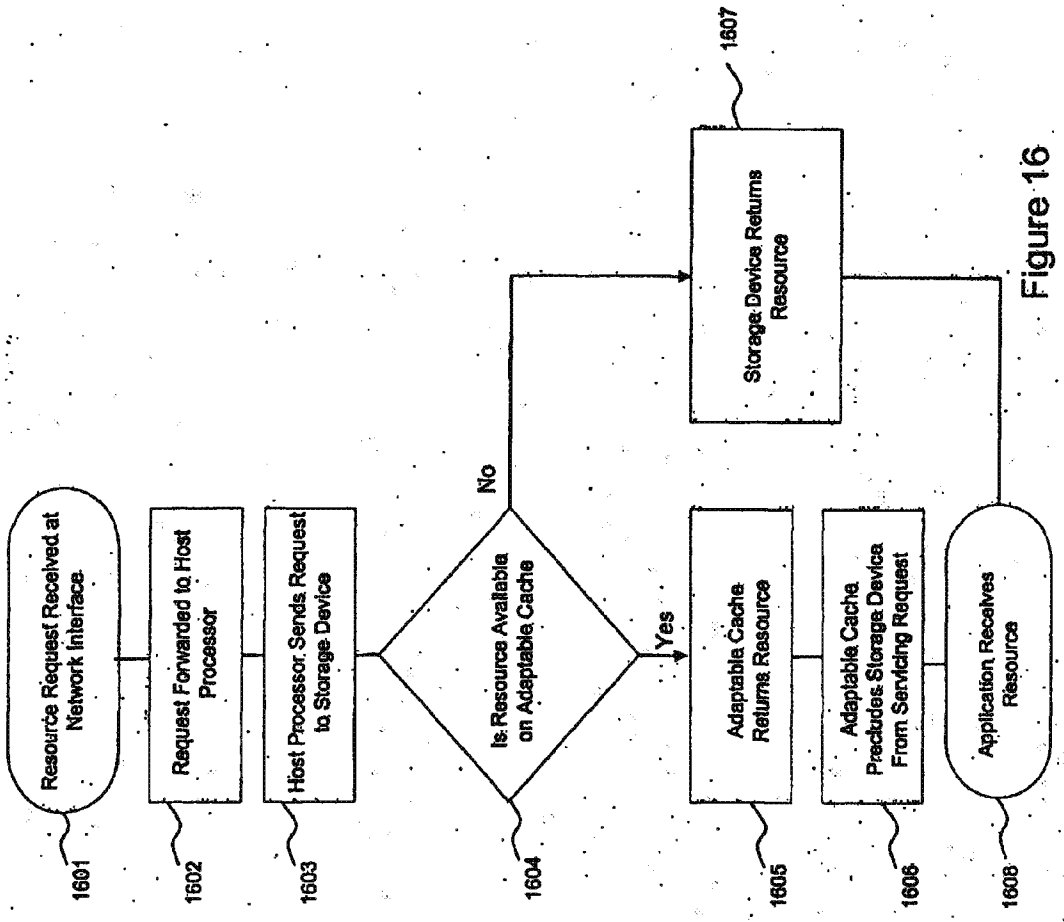

Figure 16